

REMARKS

Applicants wish to thank the Examiner for considering the present application. In the Office Action dated November 2, 2004, claims 1-21 are pending in the application. Applicants respectfully request the Examiner for reconsideration of the rejections.

Claims 10-21 have been renumbered 9-20 by the Examiner. Accordingly, the prosecution will continue with this numbering.

Claims 19, 20 and 21 stand objected to. Each of the dependent claims from claim 9 on have been reconsidered and had their dependencies changed accordingly. Applicants believe that these rejections have now been overcome.

Claims 1-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Lemelson* (6,226,389) in view of *Breed* (3,324,453). Applicants respectfully traverse.

Claim 1 is a pre-crash sensing system coupled to a counter-measure system for sensing an object that includes a vision system producing a plurality of frames of at least 100 frames per second, a video processor coupled to the vision system. The video processor determines a distance, velocity and an acceleration of the object from the plurality of frames and the rate of the frames. Claim 1 was amended to clarify that the rate of the frames and the plurality of frames is used. A controller is coupled to the vision system for deploying the counter-measure in response to the object distance velocity and object acceleration. Claim 9 is the other independent claim and sets forth a pre-crash side impact sensing system for an automotive vehicle that includes a camera vision system that also produces 100 frames per second, a video processor that uses the frame rate and the plurality of frame to determine a distance velocity and acceleration of the object and a controller coupled to the vision system for deploying the counter-measure in response to the distance object velocity and the object acceleration. The Examiner cites the *Lemelson* reference for teaching a video processor determining a distance velocity and an acceleration of the object from the plurality of frames.

The Examiner cites Col. 7, lines 41-47. Applicants agree that a distance to the object and acceleration and velocity is mentioned. However, what has not been mentioned is the use of the rate of the frames in determining the distance, acceleration and velocity of the object. In determining the distance to the object, the object image width in pixels is used in the *Lemelson* as set forth in Col. 7, line 44. The relative velocity and the accelerations are determined from the first and second derivatives of the image width with respect to time. That is, no frame rate is used for determining the velocity or the acceleration. Applicants agree with the Examiner that the *Lemelson* reference does not teach a camera having more than 100 frames per second. However, the Examiner sets forth the *Breed* reference for the teaching of more than 100 frames per second. Applicants agree that Col. 22, line 3, of the *Breed* reference teaches 120 frames per second. However, the *Breed* reference is generally directed to a system for monitoring the interior of the vehicle. Only a slight reference to "monitoring the environment outside of the vehicle for purposes of blind spot detection, collision avoidance and anticipatory sensing" is set forth in Col. 22, lines 18-20. No teaching is set forth for teaching the determination of the distance, velocity and acceleration of the object from the rate of the frames. Applicants therefore respectfully request the Examiner to reconsider the rejection of claims 1 and 9.

Likewise, claims 2-8 and 10-16 are believed to be allowable for the same reasons set forth above.

Claim 17 is an independent claim directed to a method of operating a pre-crash sensing system. Claim 17 also has similar limitations to claims 1 and 9 in that an object distance is determined with the image device as a function of the frame rate. Also, the object speed and acceleration are determined as a function of the frame rate. As mentioned above, neither reference teaches or suggests such steps.

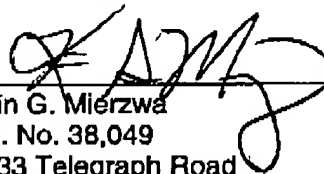
It should also be noted that the reason for the use of a high frame rate is to allow sufficient time to calculate an impending crash in response to the signals. That is, the present application may for example, be used in a side impact system such as specifically set forth in

claim 9. Applicants therefore respectfully request the Examiner to reconsider the rejection of claim 17 as well as dependent claims 18-20.

In light of the above amendments and remarks, applicants submit that all rejections are now overcome. The applicants have added no new material to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments which would place the application in better condition for allowance, the Examiner is respectfully requested to call the undersigned attorney.

Please charge any fees required in the filing of this amendment to Deposit Account 06-1510.

Respectfully submitted,



Kevin G. Mierzwa
Reg. No. 38,049
28333 Telegraph Road
Suite 250
Southfield, MI 48034
(248) 223-9500

Date: 1-19-05